

Chapter 10-5

Standard Operating Guideline for Rural Water Supply

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1. Purpose

This SOG details how PVFD will handle water supply for fires in areas without hydrants. Since this situation usually occurs in rural areas, the various water supply options are grouped under the name of "rural water supply".

2. Response

PVFD and its surrounding departments assign map box numbers that end in "T" to areas without hydrants. PVFD members should be aware of areas within the district that require tankers, even though hydrants are present. Persimmon Ridge is an example of this. For these areas, the response order for apparatus is as follows: **8433, 8467, 8431, 8432, 8476, 8498**. Station officers may alter this order if they are aware of additional information that would necessitate it. If 8467 is requested for mutual aid on structure fires, it will respond with 8433.

3. Scene Set-Up

The first arriving command officers and the officers of 8433 and 8467 must examine the scene and determine the best way to set up a water delivery system. If a working fire exists, a Water Supply Officer (WSO) should be appointed immediately to organize this. Special attention must be given to the following:

- Placement of the supply engine and portable tanks that won't block roads
- Creating an easy, safe route for tankers to fill and dump
- Finding an appropriate staging location for other apparatus
- Setting up a pumping relay if necessary
- Safe operation of apparatus if they must drive off of roadways

4. Water Supply Strategy & Tactics

The following are the standard options for water supply in a rural setting. The WSO, in consultation with the Incident Commander, should decide quickly which option will work best, and organize the appropriate crews to set it up. It is a very good idea to let all crews know via radio which option is being used. This allows all incoming units to begin positioning themselves accordingly.

1. Nursing the attack pumper

In this set-up, the tanker (or another pumper) places their unit close to the attack pumper. A short 2 ½" line is laid to connect the two units. The tanker off-loads its water into the tank of the attack pumper. When the tanker is empty, the line is disconnected from the tanker, and it goes to refill. Another tanker (or pumper) then connects to the supply line and repeats the process.

This set-up works best for small fires that will not require more water than what is carried in 2 apparatus tanks. It is also used for nuisance fires, where continuous, fast supply is not necessary.

2. Water shuttling

In this operation, the attack pumper is set up to draft from a portable tank. Tankers then dump their water into the portable tank and leave to be refilled. The attack pumper keeps its tank full as a safety buffer. It is also a good idea to have the second arriving pumper position near the attack pumper, and connect a supply line between the two. The second pumper then becomes an additional back-up water supply.

3. Rural Hitch

This operation is a variation of water shuttling, and is the most common way shuttling is accomplished. In this set-up, the attack pumper lays its own supply line from the dump site to the scene. The second arriving pumper connects to the end of the supply line and begins pumping its tank water to the attack pumper. The second arriving pumper is now referred to as the *supply pumper*. Meanwhile, the tanker sets up a portable tank next to the supply pumper and dumps its water.

As soon as the tanker is empty, it leaves to be refilled. When the supply pumper has emptied its tank, they shut down and switch to drafting from the portable tank. If the supply pumper's suction hose is connected through an intake valve, the transition to drafting should be done as soon as there is water in the portable tank. The supply pumper then resumes pumping to the attack pumper, while refilling its own tank. The supply pumper's tank is then left full as a safety buffer. As additional tankers arrive, they dump their water into the portable tank.

If necessary, a second portable tank can be placed next to the first to provide for additional water storage. In this case, the tankers should dump into the second portable tank. A jet siphon is placed between the two tanks to allow the supply pumper to move water from the second portable tank into the first.

4. Relay Pumping

Relay pumping is used when there is a good hydrant or static water source available, but it is greater than 1000' from the scene. The exact details of a relay set-up must be determined at the time of the incident. However, the basic set-up of a pumping relay is as follows:

1. The attack pumper positions at the scene.
2. Additional pumpers lay a supply line from the scene to the water source.
3. Pumpers are placed every 1000' in the supply line, set up to pump the line toward the scene.
4. The pumper at the water source is the first to pump into the line, and the last to shut down when done. This should also be the pumper with the highest gpm rating.
5. The Rule of Thumb for pumping a relay is as follows:
 - Each pumper starts pumping at 150 psi, while maintaining 50 psi on the intake.

5. Drafting from a Static Source

Drafting from a static source can be used if the source can be safely reached, and will provide adequate water. Small streams may be dammed up to provide a place to draft. Swimming pools may be used if they are accessible. However, pools may be damaged by the drafting operation, so this should be a last resort.

When a drafting operation is completed, all equipment that received water from the static source must be fully flushed with hydrant water. It is also a good idea to back-flush the supply pumper to clean its impellers.

6. Low Flow Fill Site

In Tanker Shuttle operations where the nearest hydrant has a low flow, the fill rate from the hydrant may be improved using the following set-up. This operation assumes that an appropriate dump site has already been established, and there is another portable tank available. The goal of this set-up is to use a portable tank at the fill site to supplement the hydrant flow when tankers are being filled via a pumper. The hydrant then refills the portable tank when tankers are not being filled.

1. Position a pumper at the fill site hydrant to accomplish the following:
 - Roadway is kept as open as possible
 - Portable tank is next to the fill site pumper's intake
 - Fill site pumper can connect to the hydrant using an intake other than the one next to the portable tank
2. Connect one pumper intake to a drafting hose that is placed in the portable tank. Connect the other intake to the hydrant and charge the hydrant.
3. Connect a hose to the discharge of the fill site pumper that will be used to fill tankers. This will be referred to as the *fill hose*.
4. Engage the pump and leave it running at idle. Open the intake valve on the hydrant line (and drafting line, if so equipped) and let the hydrant back-fill the portable tank.
5. As tankers arrive, connect them to the fill hose, open the appropriate valves and raise the throttle on the fill site pumper. Pump the fill hose at 100 psi or less until the tanker is full.
6. Return the pumper throttle to idle and shut the discharge valve.
7. When the next tanker arrives, go to step 5 and repeat the process.

Since PVFD pumpers are currently set up to take hydrant water in on the right side only, the best way to accomplish the above set-up is as follows:

1. Position the pumper on the edge of the road so that the hydrant is on the left side, and is in line with the front bumper of the pumper.
2. Set the portable tank in the grass on the left side of the pumper, close to the pump panel.
3. Use the soft suction 5" hose and make-up section to connect to the hydrant. Keep the hydrant hose as close to the pumper as possible to keep the road clear.